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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,070	04/11/2006	Stephen David Voller	0113.00003	3661

7590 12/24/2008  
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EXAMINER
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SUITTE, BRYANT P

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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12/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,070	<b>Applicant(s)</b> VOLLER ET AL.	
	<b>Examiner</b> BRYANT SUITTE	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 and 18-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16, 17 and 48-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/13/07</u> .                                                 | 6) <input type="checkbox"/> Other: _____                          |

**FUEL CELL SYSTEMS**

Examiner: Suitte

10/563,070

December 13, 2008

***Election/Restrictions***

1. Applicant timely traversed the restriction (election) requirement of Group VII, claims 16-17 and 48-51 in the reply filed on September 5, 2008. Claims 1-15 and 18-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim.

***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the air mixer of the instant claims 49, 50 and 51 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Becerra et al. (US 2005/0014041).

Regarding claim 16, Becerra discloses a management system for a fuel cell system comprising a fuel canister (14) comprising a replenishment control system (12), a container control system (20) and other components. See paragraph 18. The

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container control system (20) in the fuel canister comprises a processor (24) (data reader), a memory (26) (data storage element). See paragraphs 19 and 21. The control system (20) is coupled to the sensor system (22) and spent fuel storage (19) in communication with the fuel cell power generation system. See figures 1A and 1B and paragraph 18. The container control system (20) is an integrated circuit or chip which stores data about the fuel canister 14(1). In the container control system 20, the memory stores information about the fuel canister 14(1) (amount of fuel based on the data read from storage element), such as the serial number, type of fuel, and history of prior use of the fuel canister 14(1), and has programmed instructions for controlling operation of sensor system 22 and the fuel cell system 10(1) (power generation system). See paragraph 21.

Regarding claim 17, Becerra discloses a container control system (20) comprising a reading and/or writing system coupled to the processor (data reader) and RAM memory which stores data about the fuel canister (14(1)). See paragraph 21.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al. (US 2005/0014041) in view of Morse et al. (US 20040166385).

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Regarding claim 48, Becerra discloses a fuel cell system comprising a fuel cell, a fuel supply system, and a fuel cell control system. The fuel cell control system is in fluid communication with the fuel cell and fuel supply system. See paragraph 8. The fuel canister (fuel supply canister) comprises a container control system (20) in the fuel canister comprises a processor (24) (data reader), a memory (26) (data storage element). See paragraphs 19 and 21. The container control system (20) is an integrated circuit or chip which stores data about the fuel canister 14(1). In the container control system 20, the memory stores information about the fuel canister 14(1) (amount of fuel based on the data read from storage element), such as the serial number, type of fuel, and history of prior use of the fuel canister 14(1), and has programmed instructions for controlling operation of sensor system 22 and the fuel cell system 10(1) (power generation system). See paragraph 21. Becerra discloses the fuel cell system utilizing natural gas, methanol, ethanol or hydrogen as viable fuel reactants in the fuel cell system, however, Becerra does not disclose a hydride fuel supply container per se.

Morse et al. discloses a metal hydride fuel storage tank with fuel cells comprising heat transfer from the fuel cell heat source that supplies heat to the tank, the heat is utilized as a component to facilitate removal of the hydrogen fuel from the cartridge. See paragraph 11. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the metal hydride fuel storage tank with the fuel cell system because Morse discloses the fuel cell supplies heat to the fuel storage tank that facilitates the production of hydrogen for the fuel cell system. See paragraph 11.

8. Claims 49 and 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al. (US 2005/0014041) in view of Morse et al. (US 20040166385) and further in view of Blanchet et al. (US 6,902,840).

Regarding claims 49 and 50, Becerra discloses a fuel cell system comprising a fuel cell, a fuel supply system, and a fuel cell control system. The fuel cell control system is in fluid communication with the fuel cell and fuel supply system. See paragraph 8. The fuel canister (fuel supply canister) comprises a container control system (20) in the fuel canister comprises a processor (24) (data reader), a memory (26) (data storage element). See paragraphs 19 and 21. The container control system (20) is an integrated circuit or chip which stores data about the fuel canister 14(1). In the container control system 20, the memory stores information about the fuel canister 14(1) (amount of fuel based on the data read from storage element), such as the serial number, type of fuel, and history of prior use of the fuel canister 14(1), and has programmed instructions for controlling operation of sensor system 22 and the fuel cell system 10(1) (power generation system). See paragraph 21. Becerra discloses the fuel cell system utilizing natural gas, methanol, ethanol or hydrogen as viable fuel reactants in the fuel cell system, however, Becerra does not disclose a hydride fuel supply container per se.

Morse et al. discloses a metal hydride fuel storage tank with fuel cells comprising heat transfer from the fuel cell heat source that supplies heat to the tank, the heat is utilized as a component to facilitate removal of the hydrogen fuel from the cartridge.

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See paragraph 11. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the metal hydride fuel storage tank with the fuel cell system because Morse discloses the fuel cell supplies heat to the fuel storage tank that facilitates the production of hydrogen for the fuel cell system. See paragraph 11.

Furthermore, Becerra and Morse do not disclose an air mixer for a fuel cell system. Blanchet discloses a fuel cell system comprising mixer (7) (air mixer) that receives exhaust from the cathode (4) into the inlet of the mixer (7) and the mixer introduces air via pipe (12) into the inlet of the cathode (7) and a controllable flow rate for supplying oxidant to mixer and a controlled recycle blower for recycling exhaust oxidant gas from outlet of cathode (controller monitors at least one parameter of the fuel system and causes said air mixer to vary a ration of exhaust air and relatively oxygen rich air in said fuel air in accordance with said at least one operating parameter). See claims 10 and 11, Figure 1. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the mixer with the fuel cell system of Becerra and Morse, because Blanchet discloses the mixer can control the supply of the oxidant gas from the outlet of cathode. See claims 10 and 11.

9. Claims 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al. (US 2005/0014041) in view of Morse et al. (US 20040166385) and further in view of Blanchet et al. (US 6,902,840) and Aramaki (US 6,635,374).

Regarding claim 51, Becerra discloses a fuel cell system comprising a fuel cell, a fuel supply system, and a fuel cell control system. The fuel cell control system is in fluid



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communication with the fuel cell and fuel supply system. See paragraph 8. The fuel canister (fuel supply canister) comprises a container control system (20) in the fuel canister comprises a processor (24) (data reader), a memory (26) (data storage element). See paragraphs 19 and 21. The container control system (20) is an integrated circuit or chip which stores data about the fuel canister 14(1). In the container control system 20, the memory stores information about the fuel canister 14(1) (amount of fuel based on the data read from storage element), such as the serial number, type of fuel, and history of prior use of the fuel canister 14(1), and has programmed instructions for controlling operation of sensor system 22 and the fuel cell system 10(1) (power generation system). See paragraph 21. Becerra discloses the fuel cell system utilizing natural gas, methanol, ethanol or hydrogen as viable fuel reactants in the fuel cell system, however, Becerra does not disclose a hydride fuel supply container per se.

Morse et al. discloses a metal hydride fuel storage tank with fuel cells comprising heat transfer from the fuel cell heat source that supplies heat to the tank, the heat is utilized as a component to facilitate removal of the hydrogen fuel from the cartridge. See paragraph 11. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the metal hydride fuel storage tank with the fuel cell system because Morse discloses the fuel cell supplies heat to the fuel storage tank that facilitates the production of hydrogen for the fuel cell system. See paragraph 11.

Furthermore, Becerra and Morse do not disclose an air mixer for a fuel cell system. Blanchet discloses a fuel cell system comprising mixer (7) (air mixer) that

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receives exhaust from the cathode (4) into the inlet of the mixer (7) and the mixer introduces air via pipe (12) into the inlet of the cathode (7) and a controllable flow rate for supplying oxidant to mixer and a controlled recycle blower for recycling exhaust oxidant gas from outlet of cathode (controller monitors at least one parameter of the fuel system and causes said air mixer to vary a ration of exhaust air and relatively oxygen rich air in said fuel air in accordance with said at least one operating parameter). See claims 10 and 11. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the mixer with the fuel cell system because Blanchet discloses the mixer can control the supply of the oxidant gas from the outlet of cathode. See claims 10 and 11.

In further detail, Becerra, Morse and Blanchet do not disclose a humidity detector for detecting the humidity of the fuel air and connected with the controller.

Aramaki disclose a fuel cell comprising a humidity gage (25) (humidity detector) connecter to the control unit (20) that monitors the humidity of the air (fuel air) supplied to the fuel cell (8) and sends a measurement signal to the control unit (20) (operating parameter). See column 3 lines 64-67. Therefore, it would have been obvious to one having ordinary skill in the art to utilize the humidity gage with the fuel cell system of Becerra, Morse and Blanchet, because Aramaki discloses the fuel cell utilizes the humidity detection readings to compensate for the humidity within the fuel cell. See column 4 lines 60-65.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYANT SUITTE whose telephone number is (571)270-3961. The examiner can normally be reached on Mon-Fri 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRYANT SUITTE/  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795